

**Supplementary Table S4.** Malignancies in patients receiving ibrutinib

	<b>First-line ≥65 years n=31</b>	<b>Relapsed/refractory n=101</b>
Any malignancy, n (%)	6 (19)	27 (27)
Melanoma skin cancer, n (%)	0	2 (2)
Malignant melanoma	0	2 (2)
Nonmelanoma skin cancer, n (%)	2 (6)	20 (20)
Basal cell carcinoma	1 (3)	12 (12)
Squamous cell carcinoma, n (%)	1 (3)	8 (8)
Seborrheic keratosis <sup>a</sup>	1 (3)	5 (5)
Non-skin cancer, n (%) <sup>b</sup>	5 (16)	8 (8)
Myelodysplastic syndrome	0	2 (2)
Prostate cancer	1 (3)	2 (2)
Bladder transitional cell carcinoma	0	1 (1)
Lung adenocarcinoma	1 (3)	1 (1)
Lung adenocarcinoma recurrent	0	1 (1)
Malignant histiocytosis	0	1 (1)
Metastases to central nervous system	0	1 (1)

Metastases to lung	0	1 (1)
Peripheral T-cell lymphoma unspecified	0	1 (1)
Adenocarcinoma	1 (3)	0
Appendix cancer	1 (3)	0
Bladder neoplasm	1 (3)	0
Pyogenic granuloma <sup>c</sup>	1 (3)	0

<sup>a</sup>Categorized as an event of nonmelanoma skin cancer.

<sup>b</sup>In the first-line  $\geq 65$  years group, 1 patient had Richter's syndrome (categorized as an event of non-skin cancer). In the relapsed/refractory group, 4 patients had chronic lymphocytic leukemia, 2 patients had Richter's syndrome, and 1 patient had chronic lymphocytic leukemia transformation. These events were reported as secondary malignancies by investigators.

<sup>c</sup>Categorized as an event of non-skin cancer.